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ABSTRACT

This research paper involved preparing a bibliography for use in Minnesota schools of media for the identification of rocks, minerals, plants and wildlife found in Minnesota. The completed bibliography would also be applicable to the surrounding states and the neighboring parts of Canada. Each entry in the bibliography includes level of interest as well as extensive information concerning illustrations, maps, photos, glossaries, bibliographies, indices, as well as pertinent instructional information for the teacher. The author plans to continue the project until coverage is essentially complete and will make it available to schools and libraries. (BR)

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ROCKS, MINERALS, PLANTS, WILDLIFE;
A PRELIMINARY BIBLIOGRAPHY OF IDENTIFICATION MEDIA
FOR USE IN MINNESOTA SCHOOLS

A Research Paper

Presented in

Library Science 6923, Research Methods

Mankato State College

IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE

Master of Science

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by

Nancy B. Olson

June 1970

SE 017 330

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Chapter 1

INTRODUCTION

School teachers have always needed material which would be of use in the identification of rocks, minerals, plants and wildlife. Planning a bibliography of media useful in Minnesota schools for such identification and the preliminary preparation of such a bibliography are the purpose of this study.

The Problem

Students frequently bring objects to their teachers for identification. These objects may be animal, vegetable, or mineral. New teachers have sufficient training in science to attempt such identification. The student is commonly referred to the library or media center for assistance.

Much excellent material on identification published by individuals, organizations, university presses, and by state and federal government agencies.

The problem of this study, then, is to locate and obtain material on identification of rocks, minerals, plants, and wildlife of Minnesota and surrounding areas, evaluate it, and prepare a preliminary bibliography.

In a search of the literature, no references were found to a bibliography of this type or content.

Limitations

Material selected for inclusion in the bibliography of media

useful for identification of rocks, minerals, plants and wildlife is subject to several limitations.

Each item selected must include, but not necessarily be limited to, the state of Minnesota.

Each item must be usable by the school student, "school" being defined as grades K-12. Not all material will be suitable for all grade levels. The rating system used of beginner, intermediate, advanced roughly parallels grade school, junior high, high school. However, it must be understood that a younger child may be able to use an intermediate or advanced book, depending on his interest in the area and his present knowledge of the field, whereas an older student with no knowledge of an area may need a beginner's book.

Each item included must be available for purchase at the time of inclusion.

No item is to be included if the cost is more than fifteen dollars per volume, unless it constitutes material not otherwise available.

Material must be carefully selected and evaluated as outlined in the plan for the study.

A preliminary bibliography is part of this study and will be found in the appendix. Many other items were evaluated and rejected. Items now included may be replaced before the final bibliography is completed. The evaluation process involved is continuous. Material within a subject area is re-examined with each addition made to the bibliography in that area.

The preliminary bibliography has also been limited by the time available for this study and by the financial resources available.

Definitions

Most of the terms used in the bibliography need no definition. Those that need their use in this context explained are defined below.

Beginner. The person who has no background in the area and needs a very simple non-technical guide which is simply written and well-illustrated. Books for these people will have many pictures, little text, and a very simple key, if one is included.

Intermediate. The person who has some background in the field, knows some of the technical vocabulary, and can use an artificial key. Books for these people will include more descriptive material.

Advanced. The person who is quite knowledgeable in the area, is familiar with the vocabulary of the field, and can use a more technical artificial key. Books for this person will include much more descriptive material than books in the other two categories include.

Colored illustrations. All colored illustrations other than watercolors.

Key. The artificial two choice scheme commonly used in identification guides may be very simple or may use quite technical terms.

Pamphlets. Inexpensive material useful for identification usually with a heavier paper cover than that used on vertical-file material.

Paperback. Printed material with paper covers which may be stapled or bound, as opposed to hardbound books.

Spiral bound. Assembled printed material with paper covers and a coil binding the pages of the book together.

Vertical-file material. Inexpensive published material of from one to forty pages with a simply written text.

Watercolors. Those colored illustrations which are of unusual

artistic merit and which are reproduced from original painting.

Wildlife. All living creatures, whatever the size, whose natural habitat is outside any man-made enclosure.

Chapter 2

PLAN FOR THE STUDY

The planning of the bibliography of media useful in the identification of rocks, minerals, plants and wildlife of Minnesota led to a three-stage program of development. Material was located and obtained. Each item was evaluated. The printing was planned for and executed.

Location of Media

Material was obtained from private organizations such as the National Wildlife Federation, from individuals who publish their own material as does Gerard Case, from minor publishers such as North Star Press, from state and federal government agencies such as the Iowa Conservation Commission, from university presses, and from other publishers. Emphasis, however, was mainly on finding the less well-known material from the sources other than major publishers.

All types of media were considered. Films or moving pictures of any type were not included since identification of an unknown object usually demands longer contemplation of the actual object and the possibilities as shown in the guides than is made possible in a moving picture.

Some types of media are especially suitable to identification of certain things such as recordings for bird, insect, and animal sounds. Pictorial representation of these sounds has been attempted many times, but is not as successful as the sound itself for identification.

Rocks and minerals are best identified by comparison with the actual object. Therefore, collections of rocks and minerals should be included.

Colored 35mm slides are quite useful in identification of any of the items. They are not so easy to compare with each other as pages in a book and may not show all the details as well as several line drawings on a page would. However, they should be included.

There are many games that would be useful in introducing children to the variations in wildlife. Some of these were included.

All types of print material were included such as books, both hardbound and paperback, pamphlets, and vertical-file material.

Each item located has led to other items through its bibliography, its publisher, or its distributor. The process of selection and evaluation will continue for some time before the bibliography can be considered complete in its coverage.

An attempt has been made to locate media suitable for identification of all types of rocks, minerals, plants and wildlife occuring in Minnesota, and for use by all levels of students.

Evaluation

Each item located for the preliminary bibliography of nature identification guides was evaluated carefully.

Material was evaluated for appearance, authenticity, availability, copyright date, cost, durability, illustrations, legibility, organizations, quality of text, size, and supplementary material.

Appearance. Material should be attractive in appearance. Students are more attracted to a well-designed book, and are motivated to use it more than they would an unattractive one.

Authenticity. The author should be a recognized authority in the field or should list suitable credentials indicating his competence. Publication by a university press, organization such as the Audubon society or governmental agency such as an extension service or the Department of the Interior indicates authenticity of the material.

Availability. Material included was available at the time of inclusion in the bibliography. This was verified for all items not recently purchased.

Copyright date. Most scientific material becomes dated rapidly. Identification media are an exception to this. Some Latin names are revised each year. New ranges are discovered for plants and wildlife. Rocks and minerals are found in new localities. Additional life history material on wildlife is available.

However, these changes are not significant for the public school. The advanced student will want to know about these findings. Periodicals in the field will be his best source of

current information.

Copyright dates are given for all print items in the bibliography.

An older book on identification is not necessarily outdated and therefore, while some items in this study may appear to be rather outdated, their material is still valid and useful today.

Cost. Material costing more than fifteen dollars per volume or item was not included unless it was outstanding in its coverage and treatment of the subject.

Durability. The item should be sturdy enough to withstand repeated handling.

Illustrations. Material for a beginner should have enough illustrations for the student to make an identification from the illustrations alone. Line drawings are especially useful for showing detail and exact form. Shaded drawings accurately and artistically depict the three-dimensional object.

Photography seldom show enough detail for accurate identification. Photographs may be supplemented for clarity by line drawings in the text or by the photographs.

Color must be critically examined for accuracy. This may vary from printing to printing of one edition.

Legibility. All illustrations, diagrams, and labels must be sharp and easy to read. The text should be in large enough type to be read easily.

Organization. The usual logical organization for identification guides is from the simple to the complex.

Quality of text. The text should be well-written, interesting, and informative. Scientific writing need not be flowery or aimed at any stylistic goal. Indeed, the simpler the style, the more precisely and directly the message will be borne.

Size. Material must be convenient to handle. Some items are especially designed to be used in the field, and thus their sizes must be considered when one is contemplating a purchase.

Supplementary material. Material was examined for the presence and the type of bibliography, index, glossary, appendix, introductory material, and explanation of the use of any artificial key included.

If the bibliography contained audiovisual material, regionally useful material, or annotations, this was noted. If the index had a separate section for families, species, common names, or authorities, this fact was noted, also.

Illustrations in a glossary were noted since this is a helpful feature.

Material found in an appendix such as laws related to collection or preservation of the subject, locations of museums, special collections, reference libraries, treatment of material, organizations or societies related to the topic, or wildlife refuges was mentioned.

Printing

It was decided to key-punch IBM cards and produce the bibliography in the form of a computer print out. In this way the bibliography could easily be revised. New entries could be

inserted by adding punched cards for them to the IBM card file. Corrections could be made by replacing only those cards involved. Items could be removed by taking their cards from the file.

An index could be prepared easily. The author, editor, title, illustrator and series cards were duplicated as each entry was prepared. These duplicate cards were kept separate and the page number of each entry in the bibliography added later. Subject cards were prepared. These cards then were all combined and machine sorted and the index printed.

An IBM Cobol 1401 program was modified for this project. All bibliographic entries were coded when punched so that the entire bibliography could be machine sorted before printing.

The preliminary bibliography and its index will be found in the appendix.

A standard form was developed to include all types of bibliographic information which might be found in any of the identification media. A copy of this form is included in the appendix.

Items were entered under title rather than author since every item evaluated had a title but not all had authors or editors.

It was decided to group the items by subject. Dewey classification numbers were assigned from the eighth edition, abridged, since this is used in many schools. Items were entered alphabetically by title within each subject area.

A complete address was included for each item which was available only from the publisher, such as the individuals and organizations.

Types of illustrations and supplementary material were noted. The type of media was included if it was other than a hardbound book.

Contents, partial contents, features or comments were included where these might be helpful.

The level for which the book is recommended is given at the end of each entry. Some items are listed as being highly recommended because of their significance, complete coverage, or general usefulness.

Chapter 3

SUMMARY

Plans have been completed for a bibliography for use in Minnesota schools of media for the identification of rocks, minerals, planets and wildlife found in Minnesota.

A preliminary bibliography and its index have been prepared, keypunched, and computer printed. These will be found in the appendix.

Conclusions

Several problems became apparent during the course of this study.

Regional material on identification of natural objects is difficult to locate. It does exist in far greater quantitites than was suspected. The process of locating and obtaining it, however, is time-consuming and expensive.

Evaluating the items obtained is continuous. An item may be selected, only to be displaced by a better item. The items included are being thought of as a collection. The problem is to make the collection complete in its coverage of subject material and user level without having too much repetition.

Printing a bibliography and its index by computer presents its own set of problems. The planning for this program must be quite detailed, since the description of each item must be anticipated and confined within the eighty spaces of a computer card. The ease of printing a bibliography, compiling and printing its index, and revising both are definite advantages to the computerization of this type of material.

Recommendations

This project will continue until the coverage is essentially complete. The plan is to have some type of media for the identification of every type of rock, mineral, plant or wildlife about which a student might ask a teacher, librarian, or media specialist.

The completed bibliography should be made available to schools throughout Minnesota. It would also be applicable to the surrounding states and the neighboring parts of Canada.

The collection of materials included should be made available to teachers, especially elementary teachers, and media people during some phase of their training.

These people should know that this material exists and what it looks like.

This material certainly should be made available to public libraries. Any librarian or media specialist could select from this bibliography items of special interest or importance to his or her collection for the use of all types of patrons.

IDENTIFICATION GUIDES WORKSHEET*

Card Code col. 12-13	On each card Dewey number is in col. 1-7 with . in column 4. Entry sequence number is in column 8-9. This number is manually assigned and is _____ for this entry.
01	(Dewey number)_____ 1 (in column 80)
11-19	(Title; subtitle)
20-24	(author(s), editor(s))
25-29	ILLUSTRATED BY
31-33	(publisher and address)
34	(series)
35	_____ed.,_____, c_____. _____p. $_____ (year) (year)
36-39	(types of illustrations _____maps,_____b & w illus.,_____col. illus.,_____line drawings, _____photos,_____color photos,_____watercolors,_____tonal drawings, _____(other)_____.
40-49	_____glossary,_____bibliography,_____annotated bibliography, _____audiovisual material included in bibliography,_____bibliography by regional area,_____general index,_____index to families and/or species,_____appendix listing_____mussums and special collections, _____laws, _____collection and location sites,_____treatment of material, _____organizations, or societies,_____(other)_____.
50-59	(Identification keys - describe or name)
60-79	CONTENTS: PARTIAL CONTENTS: FEATURES:
81	(type of media)
82	RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED

* words in ( ) are not keypunched

549

MINERALOGY

549
A FIELD GUIDE TO ROCKS AND MINERALS.
POUGH, FREDERICK H.
HOUGHTON MIFFLIN.
THE PETERSON FIELD GUIDE SERIES, 7.
3RD ED, 1960, 349 P., $4.95
MAPS, LINE DRAWINGS, PHOTOS, COLOR PHOTOS.
GLOSSARY, ANNOTATED BIBLIOGRAPHY, GENERAL INDEX.
QUITE TECHNICAL.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

553

ECONOMIC GEOLOGY

553
A RANGE GUIDE TO MINES AND MINERALS.
HOW AND WHERE TO FIND VALUABLE ORES AND MINERALS IN THE UNITED STATES.
RANSOM, JAY ELLIS.
HARPER AND ROW, NEW YORK.
1964, 298 P., $5.95
MAPS, B/W ILLUS., PHOTOS.
GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PARTIAL CONTENTS - PREPARATION FOR MINERAL COLLECTING, MINES AND MINERALS OF AMERICA.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

560

PALEONTOLOGY

560
THE FOSSIL BOOK.
THE EXCITING STORY OF PLANTS, ANIMALS, AND LESSER CREATURES DURING THE PAST TWO BILLION YEARS.
FENTON, CARROLL LANE.
FENTON, MILDRED ADAMS.
DOUBLEDAY.
1958, 482 P., $15.00
MAPS, B/W ILLUS., LINE DRAWINGS, PHOTOS, COLOR PHOTOS, SHADED DRAWINGS.
GLOSSARY, ANNOTATED BIBLIOGRAPHY, GENERAL INDEX, APPENDIX LISTING, MUSEUMS AND SPECIAL COLLECTION.
MANY ILLUSTRATIONS. INTERESTING TO READ.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE.

560
FOSSIL SHARK AND FISH REMAINS OF NORTH AMERICA.
CASE, GERARD R.
GERARD R. CASE, 225 ST. PAULS AVE., JERSEY CITY, NEW JERSEY, 07306.
1967, 20 P., $2.25
LINE DRAWINGS, PHOTOS.
BIBLIOGRAPHY.
PARTIAL CONTENTS - LOCALITIES AND COLLECTING TECHNIQUES. ALMOST NO TEXT.
PAMPHLETS.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

560
FOSSILS ILLUSTRATED.
CASE, GERARD R.
GERARD R. CASE, 225 ST. PAULS AVE., JERSEY CITY, NEW JERSEY, 07306.
1968, 32 P., $2.50
LINE DRAWINGS, PHOTOS.
BIBLIOGRAPHY.
NO TEXT.
PAMPHLET.
RECOMMENDED FOR BEGINNER.

560
FOSSILS IN AMERICA.
THEIR NATURE, ORIGIN, IDENTIFICATION AND CLASSIFICATION, AND A RANGE GUIDE TO COLLECTING SITES.
RANSOM, JAY ELLIS.
HARPER AND ROW, NEW YORK.
1964, 398 P., $8.95
MAPS, LINE DRAWINGS, PHOTOS.
GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX, APPENDIX LISTING MUSEUMS AND SPECIAL COLLECTIONS, REFERENCE LIBRARIES.
INCLUDES FOSSIL COLLECTING LOCALITIES IN THE UNITED STATES BY STATE, COUNTY, AND TOWN.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

571

ARCHEOLOGY

571
AMATEUR ARCHAEOLOGISTS' HANDBOOK
ROBBINS, MAURICE
IRVING, MARY B., ED.
THOMAS Y. CROWELL CO.
1965, 273 P., $6.95
MAPS, B/W ILLUS., LINE DRAWINGS, PHOTOS.
GLOSSARY, AUDIO-VISUAL MATERIAL INCLUDED IN ANNOTATED BIBLIOGRAPHY, GENERAL INDEX, APPENDIX LISTING, MUSEUMS AND SPECIAL COLLECTIONS, LAWS, COLLECTION AND LOCATION SITES, ORGANIZATIONS OR SOCIETIES, STUDY COURSES.
CLASSIFICATIONS OF ARTIFACTS, HUMAN BONES.
BEFORE YOU START TO DIG, WHO LIVED WHERE, HOW TO KNOW WHERE TO DIG, WHAT YOU WILL FIND, HOW TO PLAN AN EXCAVATION, WHAT YOU NEED TO KNOW ABOUT SOILS, HOW TO EXCAVATE A SITE, HOW TO RECORD DATA, HOW TO PRESERVE AND RESTORE YOUR FINDS, HOW TO DATE ARCHAEOLOGICAL FINDS, HOW TO WRITE A SITE REPORT.
INCLUDED BECAUSE THESE OBJECTS ARE OFTEN BROUGHT TO TEACHERS FOR IDENTIFICATION.
HIGHLY RECOMMENDED FOR BEGINNERS, INTERMEDIATES.

574

BIOLOGY

574
LIVING THINGS, HOW TO KNOW THEM.
JAQUES, H. E.
WM. C. BROWN, DUBUQUE, IOWA
PICTURED KEY NATURE SERIES
1947, 172 P., $2.50 - SPIRAL BOUND, $3.25 - CLOTH BOUND.
MAPS, B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEY TO THE PHYLA, CLASSES AND ORDERS OF ALL LIVING THINGS.
INCLUDES MORE THAN 100 SUGGESTIONS FOR NATURE STUDY PROJECTS.
THIS IS THE HANDBOOK TO START WITH WHEN YOU HAVE A TOTALLY UNFAMILIAR SPECIMEN.
RECOMMENDED FOR INTERMEDIATES, ADVANCED.

580

BOTANY

580

PLANT FAMILIES, HOW TO KNOW THEM.
JAQUES, H. E.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED-KEY NATURE SERIES.
2ND ED., 1949, 177 P., $2.50 - SPIRAL BOUND, $3.25 - CLOTH BOUND.
LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEYS FOR THE IDENTIFICATION OF FAMILIES OF PLANTS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

581.92

AQUATIC BOTANY

581.92
HOW TO KNOW THE AQUATIC PLANTS
PRESCOTT, G. W.
WM. C. BROWN CO., DUBUQUE, IOWA
PICTURED KEY NATURE SERIES.
1969, 171 P., $2.50 - SPIRAL BOUND, $3.25 - CLOTH BOUND.
LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
KEY TO THE GENERA OF AQUATIC PLANTS.
INCLUDES DISTRIBUTION AND COLLECTING OF AQUATIC PLANTS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

581.92
HOW TO KNOW THE FRESH-WATER ALGAE
PRESCOTT, G. W.
WM. C. BROWN, DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES
2ND ED., 1964, 272 P., $3.25 SPIRAL BOUND, $4.00 - CLOTH BOUND.
LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEY TO THE COMMON GENERA OF FRESH-WATER ALGAE.
INCLUDES HOW AND WHERE TO COLLECT FRESH-WATER ALGAE.
3RD ED. IN PREPARATION.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

582

SEED-BEARING PLANTS

582
COMMON POISONOUS PLANTS
KINGSBURY, JOHN M.
NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL, ITHACA
CORNELL EXTENSION BULLETIN 538
1969, 32 P., $.20
LINE DRAWINGS, PHOTOS.
VERTICAL FILE MATERIAL.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

582
COMMON WEEDS OF THE CANADIAN PRAIRIES.
BEST, K. F.
BOOD, A. C.
PUBLICATION 1136
1964, 71 P., $1.00
LINE DRAWINGS.
GLOSSARY, GENERAL INDEX.
SIMPLE KEY TO SPECIES
PAPERBACK
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

582
EARLY SUMMER WILD FLOWERS
STEVENS, O. A.
EXTENSION SERVICE, NORTH DAKOTA STATE UNIVERSITY, FARGO, N. DAKOTA
CIRCULAR A-370
1962, 4 P., FREE.
LINE DRAWINGS, PHOTOS.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNERS.

582
A FIELD GUIDE TO TREES AND SHRUBS
PETRIDES, GEORGE A.
PETRIDES, GEORGE A., ILLUS.
PETERSON, ROGER TORY, ILLUS.
HOUGHTON MIFFLIN CO.
THE PETERSON FIELD GUIDE SERIES, 11
1958, 431 P., $4.95
COLORED ILLUS., LINE DRAWINGS.
GLOSSARY, APPENDIX, PLANT RELATIONSHIPS, CONVERSION TABLE.
1. WINTER KEY TO PLANTS WITH OPPOSITE LEAF SCARS.
2. WINTER KEY TO PLANTS WITH ALTERNATE LEAF SCARS
3. KEY TO TREES IN LEAFY CONDITION.
INCLUDES SECTION - SILHOUETTES BY ROGER TORY PETERSON.
CAN BE USED YEAR-ROUND.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

582
HOW TO KNOW THE ECONOMIC PLANTS
JAQUES, H. E.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED-KEY NATURE SERIES
1958, 174 P., $2.50 - SPIRAL BOUND, $3.25 - CLOTH BOUND.
LINE DRAWINGS
PICTURED GLOSSARY, GENERAL INDEX.
PICTURED-KEYS FOR IDENTIFYING THE ECONOMIC PLANT.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

582
HOW TO KNOW THE FALL FLOWERS
CUTHBERT, MABEL JAQUES
WM. C. BROWN, DUBUQUE, IOWA
PICTURED KEY NATURE SERIES
1948, 199 P., $2.50 - SPIRAL BOUND, $3.25 - CLOTH BOUND.
MAPS, B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURE-KEYS FOR THE IDENTIFICATION OF OUR MORE COMMON FALL-FLOWERING HERBACEOUS PLANTS.
INCLUDES 'SOME SUGGESTIONS ABOUT A HERBARIUM.'
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

582
HOW TO KNOW THE SPRING FLOWERS.
CUTHBERT, MABEL JAQUES
WM. C. BROWN, DUBUQUE, IOWA
PICTURED KEY NATURE SERIES
1949, 194 P., $2.50 - SPIRAL BOUND, $3.25 - CLOTH BOUND.
MAPS, B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEYS FOR IDENTIFYING THE MORE COMMON SPRING-FLOWERING HERBACEOUS PLANTS, MONOCOTYLEDONS, DICOTYLEDONS.
INCLUDES STATE FLOWERS, SUGGESTIONS FOR PLANT PROJECTS, HINTS IN CONSERVING WILD FLOWERS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

582
HOW TO KNOW THE WEEDS
JAQUES, H. E.
WM. C. BROWN, DUBUQUE, IOWA
PICTURED KEY NATURE SERIES
1959, 230 P., $3.00 - SPIRAL BOUND, $3.75 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, GENERAL INDEX.
PICTURED-KEYS FOR DETERMINING MANY COMMON WEEDS.
INCLUDES 'FACTS ABOUT WEEDS' AND GENERAL PRINCIPLES FOR WEED CONTROL.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

582
KEY FOR TREES OF IOWA
COOPERATIVE EXTENSION SERVICE, IOWA STATE UNIVERSITY, AMES, IOWA.
F-282
1965, 16 P., $.12
LINE DRAWINGS.
INDEX TO FAMILIES AND/OR SPECIES.
SIMPLE ILLUSTRATED ARTIFICIAL KEY.
PAMPHLET.
RECOMMENDED FOR BEGINNERS.

582
NORTH DAKOTA'S LATE SUMMER FLOWERS.
STEVENS, O. A.
EXTENSION SERVICE, NORTH DAKOTA STATE UNIVERSITY, FARGO, N. DAKOTA.
CIRCULAR A-383
1962, 6 P., FREE.
LINE DRAWINGS, PHOTOS.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNERS.

582
NORTH DAKOTA'S SPRING WILD FLOWERS.
STEVENS, O. A.
EXTENSION SERVICE, NORTH DAKOTA STATE UNIVERSITY, FARGO, N. DAKOTA.
CIRCULAR A-365
1962, 4 P., FREE.
LINE DRAWINGS, PHOTOS.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNERS.

582
POISON IVY, POISON SUMAC, AND OTHER RASH-PRODUCING PLANTS.
KINGSBURY, JOHN M.
NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL, ITHACA
CORNELL EXTENSION BULLETIN 1154
1968, 16 P., $.10
LINE DRAWINGS, PHOTOS.
VERTICAL FILE MATERIAL.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE.

582
SEEDS OF IOWA NOXIOUS AND COMMON WEEDS.
ISELY, DUANE
BRAGONIER, W. H.
COOPERATIVE EXTENSION, IOWA STATE UNIVERSITY, AMES, IOWA.
1962, 24 P., $.15
PHOTOS.
GLOSSARY.
IDENTIFICATION KEYS - NOXIOUS WEED SEEDS, COMMON WEED SEEDS.
PARTIAL CONTENTS -IOWA WEED AND SEED LAWS, WHAT IS A SEED, DIFFICULTIES IN IDENTIFYING SEEDS, COMMON WEEDS.
PAMPHLET.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

582
TREES OF IOWA
CAMPBELL, RICHARD B.
AGRICULTURE EXPERIMENT STATION, IOWA STATE UNIVERSITY, AMES, IOWA.
BULLETIN P121
1961, 64 P., $.60
LINE DRAWINGS, PHOTOS.
INDEX BY COMMON NAMES.
SIMPLIFIED KEY FOR NATIVE TREES.
INCLUDES ILLUSTRATIONS OF LEAVES, FRUIT, TWIGS.
PAMPHLET.
RECOMMENDED FOR BEGINNERS.

582
TREES OF NORTH AMERICA.
NATIONAL WILDLIFE FEDERATION.
36'' X 24'', $1.25
COLORED ILLUS.
WALL CHART
RECOMMENDED FOR BEGINNERS.

582
TREES OF NORTH AMERICA.
A GUIDE TO FIELD IDENTIFICATION.
BROCKMAN, C. FRANK
ZIM, HERBERT S., ED.
MERRILEES, REBECCA, ILLUS.
GOLDEN PRESS, NEW YORK
A GOLDEN FIELD GUIDE
1968, 280 P., $2.95
MAPS, COLORED ILLUS.
BIBLIOGRAPHY, GENERAL INDEX.
INCLUDES 730 SPECIES.
PAPER BOUND.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

582
WEED SEEDS
WRIGHT, W. H., ILLUS.
DEPARTMENT OF AGRICULTURE, OTTAWA, CANADA.
1952-53, 8 P./PT., $1.50/PT., 8 PARTS.
COLORED ILLUS, 36 ILLUS. PER PART.
NO TEXT.
UNBOUND MATERIAL IN FOLDER.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

582
WEEDS OF CANADA
FRANKTON, CLARENCE
MULLIGAN, GERALD A.
WRIGHT, W. H., ILLUS.
STEINS, ILGVARS, ILLUS.
CANADA DEPARTMENT OF AGRICULTURE, OTTAWA.
PUBLICATION 948
2ND ED, 1970, 217 P., $3.00
LINE DRAWINGS.
ANNOTATED BIBLIOGRAPHY, GENERAL INDEX.
EXCELLENT ILLUSTRATIONS INCLUDE ALL PARTS OF THE PLANT USEFUL FOR IDENTIFICATION.
PAPERBACK.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

582
WEEDS OF THE NORTH CENTRAL STATES.
AGRICULTURAL EXPERIMENT STATION, UNIVERSITY OF ILLINOIS, URBANA, ILLINOIS.
CIRCULAR 718
2ND ED., 1960, 262 P., $1.00
MAPS, B/W ILLUS.
GLOSSARY, INDEX TO FAMILIES AND SPECIES.
5 IDENTIFICATION KEYS BASED ON FLOWER COLOR.
PAPERBACK.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

582
WILD FLOWERS OF THE UNITED STATES
THE NORTHEASTERN STATES, VOL. 1
RICKETT, HAROLD WILLIAM
STEERE, WILLIAM C., ED.
MCGRAW-HILL
1966, 2 PARTS, 560 P., $39.50
MAPS, LINE DRAWINGS, COLOR PHOTOS.
ILLUSTRATED GLOSSARY, GENERAL INDEX.
SIMPLE ARTIFICIAL KEYS INCLUDED.
PUBLICATION OF THE NEW YORK BOTANICAL GARDEN.
AN ATTEMPT TO PRESENT ALL THE WILDFLOWERS OF THE
NORTHEASTERN UNITED STATES INCLUDING MINNESOTA
IN COLOR PHOTOGRAPHS AND NON-TECHNICAL DESCRIPTIONS.
BEAUTIFUL PHOTOGRAPHS WITH SUPPLEMENTARY LINE DRAWINGS
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE,
ADVANCED.

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WILDFLOWER TRAINING CARD ALBUM.
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WILDFLOWERS OF NORTH AMERICA.
NATIONAL WILDLIFE FEDERATION.
36'' X 24'', $1.25
COLORED ILLUS.
WALL CHART
RECOMMENDED FOR BEGINNERS.

582
WINTER TWIGS
ROCKCASTLE, VERNE N.
NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL
UNIVERSITY, ITHACA, NEW YORK.
CORNELL SCIENCE LEAFLET, V. 58, NO. 2
1965, 32 P., $.25
PHOTOS.
ANNOTATED BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNERS.

584

MONOCOTYLEDONS

584
HOW TO KNOW THE GRASSES
POHL, RICHARD W.
WM. C. BROWN, DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
2ND ED. 1968, 244 P., $3.25 - SPIRAL BOUND,
$4.00 - CLOTH BOUND.
MAPS, LINE DRAWINGS.
PICTURED GLOSSARY, ANNOTATED BIBLIOGRAPHY, GENERAL INDEX.
50 1. KEY TO GRASSES, SEDGES, AND RUSHES.
2. GENERAL KEY TO THE GENERA OF AMERICAN GRASSES.
3. PICTURED-KEYS TO COMMON AMERICAN GRASSES.
INCLUDES HOW TO COLLECT AND STUDY GRASSES.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

586

SEEDLESS PLANTS

587

FERNS

587
THE FERNS AND FERN ALLIES OF MINNESOTA.
TRYON, ROLLA M.
MONSERUD, WILMA, ILLUS.
UNIVERSITY OF MINNESOTA PRESS
1954, 166 P., $1.75 PAPER BACK.
MAPS, B/W ILLUS., LINE DRAWINGS.
GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
IDENTIFICATION KEYS FOR EACH SPECIES.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

587
FERNS AND THEIR ALLIES.
ROCKCASTLE, VERNE N.
NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY, ITHACA, NEW YORK.
CORNELL SCIENCE LEAFLET, V. 58, NO. 4
1965, 32 P., $.25
LINE DRAWINGS, PHOTOS.
ANNOTATED BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER.

588

MOSSES, LICHENS

588
HOW TO KNOW THE LICHENS.
HALE, MASON E.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1969, 226 P., $3.00 - SPIRAL BOUND, $3.75 - CLOTH BOUND.
MAPS, B/W ILLUS., LINE DRAWINGS, PHOTOS.
PICUTRED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEY TO THE FOLIOSE AND FRUTICOSE LICHENS.
PARTIAL CONTENTS - WHERE TO LOOK, WHAT TO LOOK FOR, HOW TO COLLECT AND STUDY LICHENS AND PROJECTS WITH LICHENS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

588
HOW TO KNOW THE MOSSES AND LIVERWORTS.
CONARD, HENRY S.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1956, 226 P., $2.75 - SPIRAL BOUND, $3.50 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS, PHOTOS.
PICTURED-KEYS FOR THE IDENTIFICATION OF THE INDEX.
PICTURE-KEYS FOR THE IDENTIFICATION OF THE BRYOPHYTA.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

589

MUSHROOMS

589
COMMON EDIBLE MUSHROOMS.
CHRISTENSEN, CLYDE M.
UNIVERSITY OF MINNESOTA PRESS.
1943, 124 P., $2.45 - PAPERBACK, $4.50 - HARD BOUND.
COLORED ILLUS., LINE DRAWINGS, PHOTOS.
BIBLIOGRAPHY, GENERAL INDEX.
INCLUDES SECTION ON MUSHROOM COOKERY.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

589
COMMON FLESHY FUNGI
CHRISTENSEN, CLYDE M.
BURGESS PUBLISHING CO., MINNEAPOLIS, MINN.
LINE DRAWINGS, PHOTOS.
GLOSSARY, BIBLIOGRAPHY, INDEX TO FAMILIES AND/OR SPECIES.
SIMPLE KEYS BASED ON SPORE COLOR.
SPIRAL BOUND.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

589
EDIBLE AND POISONOUS MUSHROOMS OF CANADA
GROVES, J. WALTON
DEPARTMENT OF AGRICULTURE, OTTAWA, ONTARIO, CANADA.
PUBLICATION 1112
1962, 298 P., $7.75
LINE DRAWINGS, PHOTOS, COLOR PHOTOS, WATERCOLORS.
GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
1. TECHNICAL KEY TO THE GENERA.
2. NON-TECHNICAL KEY TO THE GENERA.
THE CLASSIC WORK ON MUSHROOMS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

589
EDIBLE WILD MUSHROOMS.
CHRISTENSEN, CLYDE M.
AGRICULTURAL EXTENSION SERVICE, UNIVERSITY OF MINN.
EXTENSION BULLETIN 357
1968, 16 P., $.15
LINE DRAWINGS, COLOR PHOTOS.
BIBLIOGRAPHY.
EXCEPTIONAL COLOR PHOTOGRAPHS.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNERS.

589
MUSHROOM COLLECTING FOR BEGINNERS.
GROVES, J. WALTON.
DEPARTMENT OF AGRICULTURE, OTTAWA, ONTARIO, CANADA.
PUBLICATION 861
2ND ED., 1958. 1ST ED., 1951. 30 P., FREE.
PHOTOS, COLOR PHOTOS.
PARTIAL CONTENTS - PARTS OF A MUSHROOM, SPORE PRINTS, GATHERING MUSHROOMS.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNERS.

590

ZOOLOGY

590
EXPLORING OUR NATIONAL WILDLIFE REFUGES.
BUTCHER, DEVEREUX
2ND ED., 1963. 340 P., $3.85
MAPS, PHOTOS.
BIBLIOGRAPHY, GENERAL INDEX, APPENDIX, WILDLIFE REFUGES BY STATE.
PAPERBACK
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

590
A FIELD GUIDE TO ANIMAL TRACKS.
MURIE, OLAUS
HOUGHTON MIFFLIN, CO., BOSTON.
THE PETERSEN FIELD GUIDE SERIES, 9
1954, 375 P., $5.95
B/W ILLUS., LINE DRAWINGS.
BIBLIOGRAPHY, GENERAL INDEX.
KEY TO TRACKS WITH GENERAL DISTRIBUTION AREAS.
THE ONLY COMPREHENSIVE BOOK ON THE SUBJECT.
INCLUDES ILLUSTRATIONS OF TRACKS, GNAWED TWIGS AND LIMBS, ANIMALS, FEET, HABITATS.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

590
POCKET GUIDE TO ANIMAL TRACKS.
STACKPOLE BOOKS, HARRISBURG, PENNSYLVANIA.
2ND ED., 1968, 63 P., $2.95
MAPS, B/W ILLUS.
GENERAL INDEX.
COMPARATIVE TRACKS.
44 ANIMALS INCLUDED.
RECOMMENDED FOR BEGINNER.

590
POND LIFE
ROCKCASTLE, VERNE N.
BAKKE, JEANNETTE
NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL UNIVERSITY, ITHACA, NEW YORK.
CORNELL SCIENCE LEAFLET, V. 60, NO. 2
1967, 32 P., $.25
LINE DRAWINGS, PHOTOS.
ANNOTATED BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

590
WILDLIFE CONCENTRATION.
NATIONAL WILDLIFE FEDERATION.
$1.00
COLORED ILLUS.
20 DIFFERENT WILDLIFE SUBJECTS.
GAME.
RECOMMENDED FOR BEGINNER.

590
WILDLIFE LOTTO
NATIONAL WILDLIFE FEDERATION.
$2.00
COLORED ILLUS.
54 DIFFERENT SUBJECTS INCLUDED.
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590
WILDLIFE OLD MAID
NATIONAL WILDLIFE FEDERATION.
$1.00
COLORED ILLUS.
CHILDREN'S CARD GAME USING WILDLIFE ILLUSTRATIONS.
GAME
RECOMMENDED FOR BEGINNER.

592

INVERTEBRATES

592
WILDLIFE OF COASTAL WATERS.
FARRAR, F. H.
NATIONAL WILDLIFE FEDERATION.
1964, 12 P., $.10
LINE DRAWINGS.
BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER.

592
WILDLIFE OF FARM AND FIELD.
BULGER, JOHN D.
NATIONAL WILDLIFE FEDERATION.
2ND ED., 1969, 1ST ED. 1964, 16 P., $.10
LINE DRAWINGS.
BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER.

592
WILDLIFE OF FORESTS AND RANGELANDS.
REAVLEY, WILLIAM L.
NATIONAL WILDLIFE FEDERATION.
1964, 12 P., $.10
LINE DRAWINGS.
BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER.

592
WILDLIFE OF LAKES, STREAMS, AND MARSHES.
MORGAN, H. R.
NATIONAL WILDLIFE FEDERATION.
1964, 12 P., $.10
LINE DRAWINGS.
BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER.

593

PROTOZOA

593
HOW TO KNOW THE PROTOZOA.
JAHN, THEODORE LOUIS.
JAHN, FRANCES FLOOD.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1949, 234 P., $3.00 - SPIRAL BOUND, $3.75 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, GENERAL INDEX.
PICTURED-KEYS TO THE PROTOZOA.
INCLUDES HOW TO FIND, COLLECT, PREPARE AND STUDY PROTOZOA.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

594

MOLLUSCS

594
HOW TO KNOW THE EASTERN LAND SNAILS.
BURCH, JOHN B.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1962, 215 P., $2.75 - SPIRAL BOUND, $3.50 - CLOTH BOUND.
LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEYS TO EASTERN U. S. LAND SNAIL FAMILIES AND SPECIES.
INCLUDES ALL LAND SNAILS EAST OF THE ROCKY MOUNTAIN DIVIDE. THE ONLY HANDBOOK ON THIS SUBJECT.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

594
SEASHELLS OF NORTH AMERICA.
A GUIDE TO FIELD IDENTIFICATION.
ABBOTT, R. TUCKER.
ZIM, HERBERT S., ED.
SANDSTROM, GEORGE F., ILLUS.
GOLDEN PRESS, NEW YORK.
A GOLDEN FIELD GUIDE.
1968, 280 P., $3.95
MAPS, COLORED ILLUS.
BIBLIOGRAPHY, GENERAL INDEX.
PARTIAL CONTENTS - 850 SPECIES INCLUDED.
PAPERBACK.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

595.7

INSECTS

595.7
A FIELD GUIDE TO THE INSECTS OF AMERICA NORTH OF MEXICO.
BORROR, DONALD J.
WHITE, RICHARD.
HOUGHTON MIFFLIN, BOSTON.
THE PETERSON FIELD GUIDE SERIES, 19
1970, 404 P., $5.95
COLORED ILLUS., LINE DRAWINGS, SHADED DRAWINGS.
GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED KEY ON ENDPAPERS.
SPONSORED BY THE NATIONAL AUDUBON SOCIETY AND NATIONAL WILDLIFE FEDERATION.
INTRODUCTORY MATERIAL ON COLLECTING, PRESERVING, CLASSIFYING AND NAMING INSECTS AS WELL AS THEIR STRUCTURE, GROWTH, AND DEVELOPMENT. OVER 1300 ILLUSTRATIONS.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

595.7
HOW TO KNOW THE BEETLES.
JAQUES, H. E.
WM. C. BROWN, DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1951, 372 P., $3.75 - SPIRAL BOUND, $4.75 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, GENERAL INDEX.
PICTURED-KEYS TO THE FAMILIES, GENERA AND SPECIES OF SOME COMMON BEETLES.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

595.7
HOW TO KNOW THE BUTTERFLIES.
EHRLICH, PAUL R.
EHRLICH, ANNE E.
GLOSSARY, PICUTRED BIBLIOGRAPHY, ANNOTATED
PICTURED-KEY NATURE SERIES.
1961, 262 P., $3.00 - SPIRAL BOUND, $3.75 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
BIBLIOGRAPHY, GENERAL INDEX.
TECHNICAL KEY TO THE FAMILIES, GENERA.
INCLUDES NOTES ON DISTRIBUTION, HABITS, LARVAL FOOD, SUGGESTIONS FOR COLLECTING AND STUDYING BUTTERFLIES.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

595.7
HOW TO KNOW THE GRASSHOPPERS, COCKROACHES AND THEIR ALLIES.
HELFER, JACQUES R.
WM. C. BROWN CO., DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1953, 354 P., $3.75 - SPIRAL BOUND, $4.75 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, GENERAL INDEX.
KEY TO MAJOR GROUPS OF ORTHOPTEROID INSECTS.
FEATURES SOME OF THE MOST IMPORTANT AGRICULTURAL, BUILDING AND HOUSEHOLD PESTS IN AMERICA.
760 SPECIES INCLUDED.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

595.7
HOW TO KNOW THE IMMATURE INSECTS.
CHU, H. F.
WM. C. BROWN, DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1949, 234 P., $2.75 - SPIRAL BOUND, $3.50 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEYS TO FAMILIES.
PARTIAL CONTENTS - WHAT ARE IMMATURE INSECTS, WHERE AND HOW TO COLLECT THEM.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

595.7
HOW TO KNOW THE SPIDERS.
KASTON, B. J.
KASTON, ELIZABETH, ILLUS.
WM. C. BROWN, DUBUQUE, IOWA.
PICTURED KEY NATURE SERIES.
1953, 220 P., $2.75 - SPIRAL BOUND,
$3.50 - CLOTH BOUND.
B/W ILLUS., LINE DRAWINGS.
PICTURED GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
PICTURED-KEYS FOR IDENTIFYING THE COMMON SPIDERS.
INCLUDES HOW TO COLLECT, PRESERVE AND STUDY
SPIDERS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

596

VERTEBRATES

596
ANIMAL TRAINING CARD ALBUM.
NATIONAL WILDLIFE FEDERATION.
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COLORED ILLUS.
INCLUDES 48 CARDS TO MOUNT IN ALBUM.
PAMPHLET.
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ANIMALS OF NORTH AMERICA.
NATIONAL WILDLIFE FEDERATION.
36'' X 24'', $1.25
COLORED ILLUS.
WALL CHART.
RECOMMENDED FOR BEGINNER.

597

FISH, AMPHIBIANS.

597
AMPHIBIANS.
ROCKCASTLE, VERNE N.
NEW YORK STATE COLLEGE OF AGRICULTURE, CORNELL, ITHACA
CORNELL SCIENCE LEAFLET, V. 54, NO. 4
MAY 1961, 32 P., $.25
PHOTOS.
ANNOTATED BIBLIOGRAPHY.
VERTICAL FILE MATERIAL.
RECOMMENDED FOR BEGINNER.

597
IOWA FISH AND FISHING.
HARLAN, JAMES R.
SPEAKER, EVERETT B.
REECE, MAYNARD F., ILLUS.
IOWA CONSERVATION COMMISSION, DES MOINES, IOWA
4TH ED., 1969, 1ST ED. 1951, 365 P., $4.00
MAPS, B/W ILLUS., COLORED ILLUS., LINE DRAWINGS, PHOTOS.
GLOSSARY, BIBLIOGRAPHY, REVISED LIST OF IOWA FISH ARTIFICIAL KEY BY REEVE H. BAILEY.
PARTIAL CONTENTS - IOWA'S FISHING WATERS, FISHES (DISCUSSED BY FAMILY), SOME COMMON FISH FOODS, BAIT AND BAITING, NOTES ON IOWA FISHING TACKLE, ANGLING, DISTRIBUTION OF THE FISHES OF IOWA.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

598

BIRDS

598
BIRDS OF NORTH AMERICA.
ROBBINS, CHANDLER S.
ZIM, HERBERT S.
BRUUN, BERTEL.
SINGER, ARTHUR, ILLUS.
GOLDEN PRESS, NEW YORK.
A GOLDEN FIELD GUIDE.
1966, 340 P., $3.95
MAPS, COLORED ILLUS.
BIBLIOGRAPHY, GENERAL INDEX.
SONAGRAM INCLUDED FOR ALMOST EVERY BIRD, SHOWS PITCH, HARMONICS, TEMPO, PHRASING, QUALITY, LENGTH OF NOTES, CHANGES IN LOUDNESS. ABOUT 700 SPECIES INCLUDED.
PAPERBACK.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

598
COMMON HAWKS AND OWLS OF IOWA.
HICKS, ELLIS A.
AGRICULTURAL EXPERIMENT STATION, IOWA STATE UNIVERSITY AMES, IOWA.
IOWA YOUTH SERIES, NO. 2
1950, 23 P., $.15
PHOTOS, SHADED DRAWINGS.
IDENTIFICATION KEYS - OUR HAWKS IN THE AIR.
PAMPHLET.
RECOMMENDED FOR BEGINNER.

598
THE DUCKS, GEESE AND SWANS OF NORTH AMERICA;
A VADE MECUM FOR THE NATURALIST AND THE SPORTSMAN.
KORTRIGHT, FRANCIS H.
SHORTT, T. M., ILLUS.
STACKPOLE, HARRISBURG, PENNSYLVANIA.
A WILDLIFE MANAGEMENT PUBLICATION.
3RD ED. 1967, 1ST ED. 1942, 476 P., $7.50
MAPS, B/W ILLUS., COLORED ILLUS., LINE DRAWINGS, PHOTOS.
GLOSSARY, BIBLIOGRAPHY, GENERAL INDEX.
THIS CLASSIC WORK ON NORTH AMERICAN WILDFOWL INCLUDES DISCUSSION OF MOULTS AND PLUMAGES, IDENTIFICATION, HABITS, MIGRATION ROUTES, FLYWAYS AND CONSERVATION. THE DESCRIPTION OF EACH BIRD INCLUDES ITS DESCRIPTION AND LIFE STORY.
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

598
DUCKS OF THE MISSISSIPPI FLYWAY.
MCKANE, JOHN.
HAAG, KEN, ILLUS.
STRUBBE, ERNEST, ILLUS.
NORTH STAR PRESS, ST. CLOUD, MINNESOTA.
1969, 56 P., $2.98
MAPS, B/W ILLUS., LINE DRAWINGS, WATERCOLORS.
GENERAL INDEX.
29 SPECIES INCLUDED.
PAPERBACK.
RECOMMENDED FOR BEGINNER, INTERMEDIATE.

598
AN EVENING IN SAPSUCKER WOODS,
THE SONGS OF BIRDS AND OTHER DENIZENS OF A NORTH-EASTERN WOODLAND.
KELLOGG, PETER PAUL.
ALLEN, ARTHUR A.
PRODUCED BY THE CORNELL LABORATORY OF ORNITHOLOGY, CORNELL UNIVERSITY.
HOUGHTON MIFFLIN CO., BOSTON.
SOUNDS OF NATURE SERIES.
1958, 1-10 INCH, 33 1/3 R.P.M., $5.95
SIDE 1 - 32 SPECIES INTRODUCED BY DR. ALLEN.
SIDE 2 - SOUNDS OF NATURE AS HEARD ON A JUNE EVENING IN SAPSUCKER WOODS. THE LISTENER IS CHALLENGED TO IDENTIFY THE SPECIES INTRODUCED ON SIDE 1 AS WELL AS OTHERS NOT PREVIOUSLY IDENTIFIED.
CONTENTS LISTED ON RECORD JACKET.
RECORD
HIGHLY RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

598
A FIELD GUIDE TO BIRD SONGS OF EASTERN AND CENTRAL
NORTH AMERICA.
KELLOGG, PETER PAUL.
ALLEN, ARTHUR A.
PETERSON, ROGER TORY.
HOUGHTON MIFFLIN CO., BOSTON.
THE PETERSON FIELD GUIDE SERIES.
2-12 INCH, 33 1/3 R.P.M., $10.95
GENERAL INDEX.
TO ACCOMPANY, PAGE BY PAGE, ROGER TORY PETERSON'S
'A FIELD GUIDE TO THE BIRDS, SECOND REVISED EDITION.'
DR. ALLEN NARRATES. CONTENTS LISTED ON RECORD JACKET.
OVER 300 BIRD SONGS AND CALLS INCLUDED.
RECORD.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

598
A FIELD GUIDE TO THE BIRDS.
EASTERN LAND AND WATER BIRDS.
PETERSON, ROGER TORY.
ILLUSTRATED BY ROGER TORY PETERSON.
HOUGHTON MIFFLIN, BOSTON.
THE PETERSON FIELD GUIDE SERIES, 1.
3RD ED., 1947, 290 P., $4.95
MAPS, B/W ILLUS., COLORED ILLUS., LINE DRAWINGS,
SHADED DRAWINGS.
ANNOTATED BIBLIOGRAPHY, GENERAL INDEX, APPENDIX,
ACCIDENTALS, SUBSPECIES.
ROADSIDE SILHOUETTES, FLIGHT SILHOUETTES ON
ENDPAPERS.
SPONSORED BY THE NATIONAL AUDUBON SOCIETY.
RECOMMENDED FOR BEGINNER, INTERMEDIATE, ADVANCED.

598
GAMEBIRDS OF NORTH AMERICA.
NATIONAL WILDLIFE FEDERATION.
30'' X 24'', $1.25
COLORED ILLUS.
WALL CHART.
RECOMMENDED FOR BEGINNER.

598
HOW TO KNOW THE WATER BIRDS.
JAQUES, H. E.
OLLIVIER, ROY.
WM. C. BROWN, DUBUQUE, IOWA.
PICTURED-KEY NATURE SERIES.
1960, 159 P., $2.75 - SPIRAL BOUND, $3.50 - CLOTH BOUND.
MAPS, B/W ILLUS., LINE DRAWINGS, PHOTOS.
PICTURED GLOSSARY, GENERAL INDEX.
PICTURED-KEYS FOR IDENTIFYING THE WATER BIRDS OF NORTH AMERICA.
INCLUDES SECTIONS ABOUT BINOCULARS AND PHOTOGRAPHING BIRDS.
RECOMMENDED FOR INTERMEDIATE, ADVANCED.

598
NAMING THE BIRDS AT A GLANCE.
BLACHLY, LOU.
JENKS, RANDOLPH.
OMAN, SHERIDAN, ILLUS.
ALFRED A. KNOPF, NEW YORK.
1963, 331 P., $4.95
B/W ILLUS.
GENERAL INDEX.
COLOR PATTERN GUIDE ON ENDPAPERS.
BRIEF DESCRIPTION OF EACH BIRD. UNIQUE APPROACH TO IDENTIFICATION BY CHARACTERISTICS NOTED AT FIRST GLANCE.
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